SWINGING CHAIR WITH AUTO-RECLINING FEATURE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation-in-part of U.S. patent application Ser. No. 15/879,612 filed Jan. 25, 2018 which in turn claims priority from U.S. Provisional Patent Application No. 62/450,267, titled "HANGING CHAIR", which was filed on Jan. 25, 2017 both of which are incorporated fully herein by reference.

TECHNICAL FIELD

[0002] The present invention relates to chairs for use outdoors and indoors and more particularly, relates to a swinging chair, with an optional auto-reclining feature, made of a hard material such as wood or plastic or a lightweight material such as fabric or leather that hangs from and within a lightweight, freestanding frame, and wherein in one embodiment, the entire chair seat and frame can be folded or transformed into a compact package for use in outdoor camping, backpacking, beach and other outdoor or indoor activities where a transformable, compact and comfortable chair is desirable.

BACKGROUND INFORMATION

[0003] Campers, hikers, backpackers and others who pursue outdoor activities desire and enjoy the ability to sit down comfortably once they arrive at their final destination or at some intermediate point. Current folding or otherwise transforming chairs do not offer the swinging action or auto-reclining feature desired by users. Some current chairs are rocking chairs, but rocking is not well suited for use on the bumpy, uneven terrain typical of the outdoors and is a very different action and feeling from a hanging chair. In addition, users of chairs indoors or in a patio setting also desire and new sitting experience that is comfortable, enjoyable and adjustable.

[0004] Accordingly, what is needed is a portable swinging chair that can be set up on terrain typically found at camping sites or at the beach and providing a chair offering the experience of both upright sitting and reclining. Such a needed chair should interface with the ground by static legs similar to ordinary chairs while providing the dynamic action of swinging that happens between the frame and the hammock-like suspended chair portion, allowing the swinging to take place independent of the terrain. Further, this new solution should, if desired, be easy to disassemble or transform, be lightweight and pack small and the various legs and other frame pieces should be coupled together so as not to be lost.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] These and other features and advantages of the present invention will be better understood by reading the following detailed description, taken together with the drawings wherein:

[0006] FIG. **1** is front photograph of the swinging chair according to the present invention;

[0007] FIG. **2**A is a perspective view of the swinging chair frame according to one aspect of the invention;

[0008] FIG. **2**B is a perspective view of an alternative embodiment of the swinging chair frame according to one aspect of the present invention;

[0009] FIG. **3** is a front view of the swinging chair frame according to the invention;

[0010] FIG. **4** is a side view of the swinging chair frame according to the invention.

[0011] FIGS. **5**A-**5**E are perspective views of the swinging chair frame hub connector according to one feature of the present invention;

[0012] FIGS. **6**A-**6**C are front, top and side perspective views of the swinging chair frame according to the invention;

[0013] FIGS. **7**A and **7**B our close-up views of the legs and upright support of the swinging chair frame according to one embodiment of the present invention illustrating extra tube wall thickness in selected locations;

[0014] FIG. **8** is a perspective view of the swinging chair support and reclining system in accordance with one feature of the present invention;

[0015] FIGS. **9**A and **9**B is a top view of the chair reclining mechanism strap lock according to one feature of the present invention;

[0016] FIGS. **10**A-**10**B are close-up perspective views of the locking upright pole tip according to one feature of the present invention;

[0017] FIGS. **11**A-**11**K are close-up perspective views of two embodiments of the chair reclining mechanism strap lock according to one feature of the present invention;

[0018] FIG. **12** is a view of one side of the auto reclining mechanism of the swinging chair according to the present invention;

[0019] FIG. **13** is a close-up view of the auto reclining mechanism pulley system of the swinging chair according to one embodiment of the present invention;

[0020] FIG. **14** is a perspective view of the reclining mechanism and pulley system of the auto reclining system of the present invention;

[0021] FIG. **15** is a side view of the auto reclining system and attachment to the armrest and the back rest of the swinging chair according to the present invention;

[0022] FIGS. **16**A and **16**B are front and rear views respectively of one embodiment of the back rest and headrest support system according to one feature of the present invention;

[0023] FIGS. **17**A and **17**B are side views of the back rest and headrest support according to one embodiment of the present invention;

[0024] FIGS. **18**A-**18**E are perspective views of the swinging chair according to the present invention utilizing flat bars to support the headrest and back portion of the chair seat;

[0025] FIG. **19** is a perspective view of the swinging chair according to the present invention utilizing poles to support the headrest and back portion of the chair seat;

[0026] FIGS. **20**A, **20**B, **21**A and **21**B are perspective front and side views of high back and low back versions of the hanging chair in accordance with the present invention;

[0027] FIG. **22** is a cross-sectional view of a generally U-shaped crossbar in accordance with one feature of the present invention;

[0028] FIG. **23**A is a perspective view of a chair frame in accordance with one feature of the present invention;